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## EUROPEAN PATENT APPLICATION

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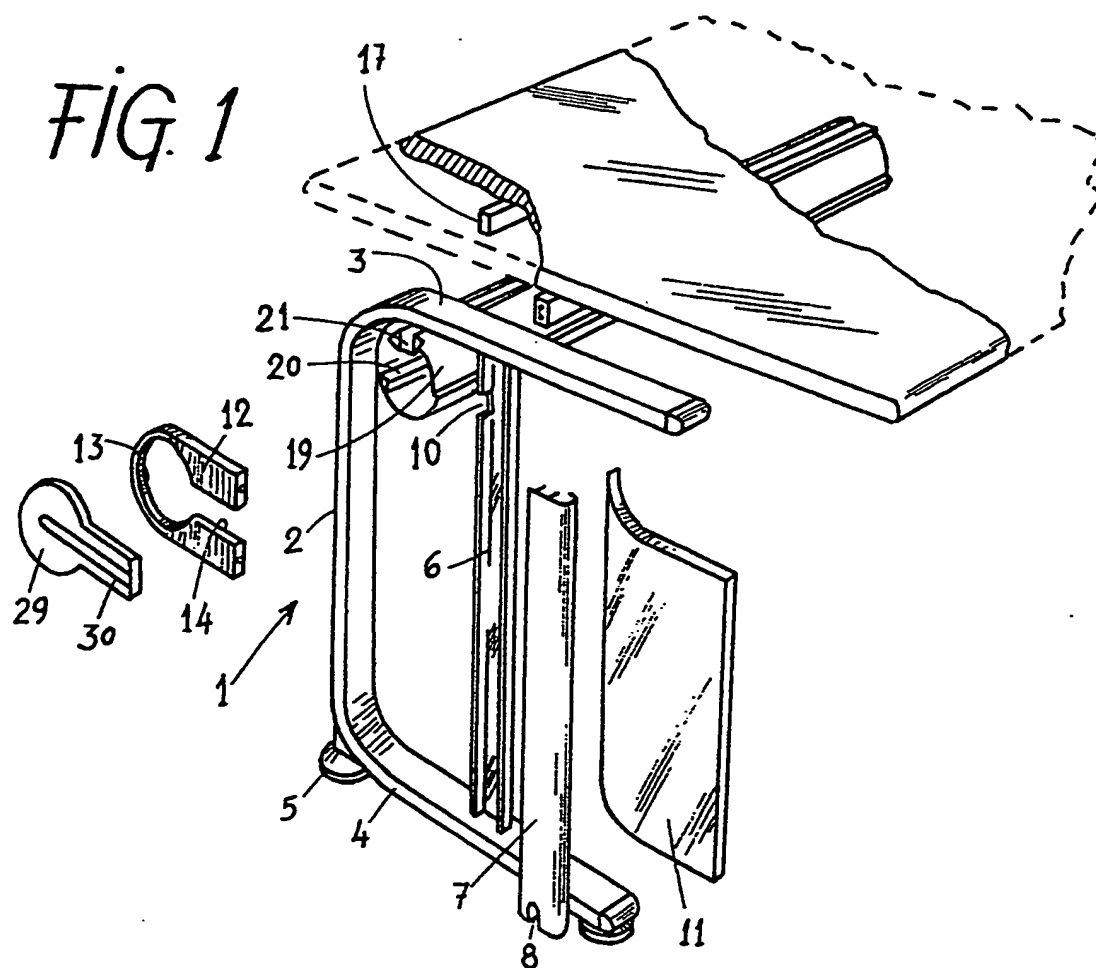
(54) Structure for the formation of office furniture and the like.

(57) It comprises uprights (1) with a tubular column for passage of cables (9), which communicates with a longitudinal tube (19) situated beneath a top-board (16), and a joint by way of a hinge formed by rotatable heads (35) in grooved profiles (37) linked to the edges of boards (33).

The pieces of furniture are provided with connection cables for all types of electrical, electronic, telephonic and similar apparatus. With the help of the hinged panels (33), furniture sets can be formed into separate departments.

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FIG. 1



The present invention refers to a structure for the formation of office furniture and the like, whose basic components permit multiple combination of furniture items to be put together to adapt them to the specific needs of each case.

## BACKGROUND OF THE INVENTION

In the installation of office furniture it is usual to use various types of furniture for each specific application. These types of furniture can be writing desks, tables adapted for accommodating computer equipment, counters, bookshelving and others. Each piece of furniture is different from the other pieces, which involves a major increase in the cost of manufacturing a range of furniture of different models.

It is often found that many electrical supply cables pass in between office furniture, for the connection of typewriters, computer equipment, telephone equipment, lights and other equipment. Such cables are a nuisance and create an untidy image in the office or premises in which they are installed. Furthermore, installation of a new electrical or telephonic apparatus involves passing further cables around the furniture units and the need to find an electrical socket, which is not always situated in an accessible place near the site of installation of the new apparatus.

In the case of spacious premises it is common for various separate departments to be formed by installing partition walls or metal dividing walls or similar, fixing of which in the required place calls for the use of securing means, which complicate the general installation of the furniture and hinder any potential change which may need to be made to it.

## DESCRIPTION OF THE INVENTION

The structure for the formation of office furniture object of the invention was conceived in order to solve the disadvantages outlined.

Said structure is of the type which includes rigid uprights situated to the sides of the piece of furniture, which constitute the support and the legs of the top-board of a table. On the basis of this known embodiment, the structure is essentially characterized by the fact that at least one of the uprights is tubular and presents a connection cable input and an output which communicates with a longitudinal tube fitted in removable position beneath the top-board, along which there is a longitudinal opening allowing the access to the cables.

The ends of the tube are located in front of access mouths set in the sides of the piece of furniture and fit with removable closure covers.

The access mouths at the ends of the tube are formed by conduits fitted into the side uprights of the piece of furniture, the ends of which present internal

housings for the connection of the tube-ends of tables juxtaposed laterally.

The uprights consist of a rigid "C" profile in straight horizontal branches, between which there runs a rigid grooved profile in the form of a column, fitted with a cover which closes off the open side, provided with the cable-input opening. Between the grooved profile and the central part of the "C" profile is fitted a decorative plate, on which is fitted a piece which includes the connection sleeves of the tubes through which the cables run. This piece is provided with a passage which establishes communication between the exit of the profile in the form of a column and the sleeve, the piece described being completed by a removable cover fitted to the external side of the sleeve and passage.

Between the external mouths of the sleeves of two tables juxtaposed in the form of an angle or corner-piece, are fitted flexible kneed sleeves.

The longitudinal tube inside which the cables are installed and the underside of the table top-board are provided with a coupling device formed by a horizontal guide and some complementary flanges which permit the tube to be fitted to the underside of the top-board, by horizontal movement of said tube.

The tube is provided with a longitudinal guide groove by way of casing, while the top-board of the table is provided with a longitudinal profile fitted with flanges, which engage into the longitudinal groove by means of axial movement of the tube.

The longitudinal tube is provided with a cover which can be located in front of the longitudinal access opening to its interior, provided with a handgrip for moving it and stops to set it in at least one open position, one closed position and an intermediate partially open position.

An upper body provided with at least one shelf is joined to the horizontal upper portions of the "C" profiles.

On the vertical portions of the "C" profiles are mounted lower shelves, located under the table top-board.

The structure also includes hinge devices formed by a joining link comprising at least two heads of circular shape linked by an intermediate radial tab. The heads are rotatably housed inside grooved profiles, of circular open interior section, provided with means of attachment to at least one panel which can be orientated like a screen and a frame member of the structure.

The heads of the links are traversed by a longitudinal rod, which constitutes a reinforcement axis.

At least one of the heads of the joining links of the hinge devices is provided with two radial tabs orientated in different directions, joined to other corresponding rotatable heads housed in the corresponding grooved profiles.

## BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of all that has been set forth, there are attached some drawings in which, only by way of example, a practical case of embodiment of the structure for the formation of pieces of furniture is shown.

In said drawings,

figure 1 is a perspective view of an exploded diagram of the basic components of the structure; figure 2 is a side elevation view of a table assembled with the structure of the invention; figure 3 is a larger-scale transversal section detail of the part of the structure fitted with the tube housing the electricity and telephone supply cables and others, with the cover in open position; figure 4 is a view similar to that of figure 3, with the tube cover in intermediate position; figure 5 is a detail similar to figure 4, though on a larger scale; figure 6 is a perspective view of the tube incorporated into a profile attached to the underside of the top-board; figure 7 is a longitudinal section detail of a sleeve, to which is coupled one end of the cable-carrying tube; figure 8 is a view similar to that of figure 7, though in this case the sleeve has had coupled to it the ends located one in front of the other of the tubes of two juxtaposed tables; figure 9 is a plan view of two tables juxtaposed; figure 10 is a plan view of two tables and a corner-piece, one of them separate, with kneed tube joining pieces; figure 11 is a plan view of the components of figure 10, coupled together; figure 12 is a transversal section view of the edges of two panels or screens connected by a hinge; figure 13 is similar to figure 12, though it shows three panels or screens connected; figure 14 is a view similar to that of figure 12, showing the edge of a top-board provided with a finishing profile similar to the joints shown in the two mentioned figures; figures 15 and 16 show plan views of various examples of assembly of screens hinged together by the devices shown in figures 12 and 13; and figure 17 is a perspective view of a group of items of furniture formed with the components of the structure in question.

## DESCRIPTION OF A PREFERRED EMBODIMENT

The structure for the formation of items of furniture consists in the drawings of metal uprights -1- of approximately "C" shape with a straight vertical portion -2-, an upper horizontal portion -3-, also straight, and another similar lower one -4- bearing feet or wheels -5-. The uprights include a grooved vertical profile -6-, by way of a vertical column, provided with a removable cover -7- whose lower end is provided with an opening -8- for the input of electricity and telephone cables -9- and the like. The profile -6- is provided with an opening -10- for passing the cables -9-.

Between the vertical portion -2- and the grooved column -6-, a lateral board -11- is attached, which does not reach the total height of the upright -1-. In the upper space existing between the top-board -11- and the horizontal portion -3- is fitted a piece -12- provided with a sleeve -13- with a longitudinal passage -14-.

The uprights -1- are linked by one or more crosspieces, not shown, or, optionally, by a vertical board or apron -15- (figure 17).

Above the portions -2- is fitted a board -16-, to the underside of which is attached a profile -17- from which there project some heads -18- which secure a longitudinal tube -19- running along the top-board -16-, provided with an opening -20- along it (figures 3, 4 and 5). For its part, tube -19- is provided with a longitudinal groove -20- by way of casing, into which the profile -17- and the heads -18- fit by axial sliding of the tube.

The tube -19- is provided with a transversally curved cover -22-, which can be slid in a circular movement around the tube -19-, provided with a flap -23- for its handling and internal stops -24, 24a- which can rest on an edge -25- of the opening -20- in order to stabilize the open and half-open positions of the cover with respect of the opening -20-.

On the opposite edge to the one where the flap -23- is situated, the cover -22- presents a rim -26- which moves in an undercutting -27- of the tube -19-, and limits possible rotation of the cover around the tube.

The tube -19- is fitted with reinforcement struts -28- spaced apart from each other and situated opposite the opening -20-.

The ends of the tube -19- are joined by means of the sleeve -13- of the piece -12- (figures 7 and 8). At the end of the tube situated on the side of the piece of furniture (figures 1, 2 and 7), the external side of the sleeve -13- is closed with a cover -29- provided with an extension -30- which closes the passage -14-. When the sleeve is the intermediate between two laterally juxtaposed tables (figure 9), the sleeve does not have a cover, as on both of its sides are fitted the ends of the two tubes (figure 8) which are aligned.

If the tables are juxtaposed with interposition of a corner-piece -31- (figures 10 and 11), the joint between the sleeves and the ends of the tubes is made by means of flexible tubular bend pipes -32-.

The structure includes some boards or screens -33-, hinged to each other and to the structure by means of links -34- formed by circular heads -35- two or more-, joined by radial flanges -36-. Said heads are housed in grooved profiles -37-, with a rear housing -38- and a harpoon -39- for coupling and union to the edges of the screens -33-. The heads -35- are traversed by a reinforcement rod -40- and may rotate like hinges (figures 12 and 13).

The screens -33- are incorporated onto the uprights -1-, with interposition of the hing devices

described (figures 15 and 16).

A grooved profile has been envisaged for use as finishing moulding for the edge of the boards or screen, in which case a continuous tubular profile -35a- similar to the heads -35- is fitted inside it. In this case it is not necessary to fit the reinforcement rod -40- (figure 14).

Raised furniture items, whether in the form of bookcase -41- or counter -42- may be fitted to the uprights -1- (figure 17).

Furthermore, between the uprights -1- and under the top-board -16- it is possible to fit shelves -43- at different heights, either projecting or otherwise from one or both sides of the table (figure 17).

Finally, the structure includes bookshelf units -44- of a total height equivalent to that of the screens, which can be joined on to the set of pieces of furniture described, by means of the circular heads -35- with flaps -36-, housed in the profiles -37- (figure 17).

As may be deduced from all that has been set forth and from the drawing, the structure in question allows office furniture sets to be put together in many different versions, enclosing areas or departments, without any need to use metal carpentry partition walls or any other form of separation. On the basis of some fundamental components, the furniture units can have various shapes and applications, with the common denominator of their all having at will a conduit -19- for the power supply cables -9- of the various pieces of electrical, electronic and communications apparatus and others, with plugging in being possible directly from the tubes hidden beneath the top-boards of the tables. Such cables are easily accessible through the longitudinal opening -20- presented by the tubes -19-, which may be closed totally or partially by means of the cover -22- incorporated to them.

Independent of the object of the invention shall be the materials used in manufacturing of the components of the structure for the formation of furniture units, shapes and dimensions of same and all accessory details which might be presented, as long as they do not affect its essential nature.

## Claims

1. Structure for the formation of office furniture and the like, of the type which comprises rigid uprights situated to the sides of the piece of furniture, which sides constitute the support and the legs of the top-board of a table, characterized in that at least one of the uprights (6, 7) is tubular and presents a connection cable input (8) and an output (10) which communicates with a longitudinal tube (19) fitted in removable position beneath the top-board, along which tube there is a longitudinal opening allowing access to the

cables.

2. Structure for the formation of office furniture and the like, as claimed in claim 1, characterized in that the ends of the tube (19) are located in front of corresponding access mouths (13) set in the sides of the piece of furniture and fitted with removable closure covers (29).

3. Structure for the formation of office furniture and the like, as claimed in claims 1 and 2, characterized in that the access mouths at the ends of the tube are formed by sleeves (13) fixed to the side uprights of the piece of furniture, the ends of which present internal housings for the connection of the tube-ends of tables juxtaposed laterally.

4. Structure for the formation of office furniture and the like, as claimed in claims 1, 2 and 3, characterized in that the uprights consist of a rigid "C" profile (1) with straight horizontal branches, between which is fixed a rigid grooved profile (6) in the form of a column, with its open side provided with a removable cover (7), provided with an opening for the cable input, a decorative plate (11) being fitted between the grooved profile and the central part of the "C" profile, on which plate is fitted a piece (12) comprising the connection sleeves (13) of the tubes (19) through which the cables run, said piece being fitted with a passage (14) which establishes communication between the output of the profile in the form of a column and the sleeve, the piece described being completed by a removable cover (29, 30) able to be fitted to the external side of the sleeve and of the passage.

5. Structure for the formation of office furniture and the like, as claimed in claims 1 to 3, characterized in that between the external mouths of the sleeves of two tables juxtaposed in the form of an angle or corner-piece, are fitted flexible and kneed sleeves (32).

6. Structure for the formation of office furniture and the like, as claimed in claim 1, characterized in that the longitudinal tube inside which the cables are installed and the underside of the table top-board are provided with a coupling device formed by a longitudinal guide (21) and some complementary flanges (18) allowing the engagement of the tube with the underside of the top-board, by longitudinal movement of said tube.

7. Structure for the formation of office furniture and the like, as claimed in claims 1 and 6, characterized in that the tube is provided with a

longitudinal guide groove (21), by way of casing, while the top-board of the table is provided with a longitudinal profile (17) from which protrude flanges (18), which engage into the longitudinal groove by means of axial movement of the tube.

5

rotatable heads housed in the corresponding grooved profiles.

8. Structure for the formation of office furniture and the like, as claimed in claim 1, characterized in that the longitudinal tube is provided with a cover (22) which can be located in front of the longitudinal opening that allows access to its interior, provided with a hand-grip for moving it and stops (24, 24a) to set it in at least one open position, one closed position and an intermediate partially open position. 10  
15
9. Structure for the formation of office furniture and the like, as claimed in claims 1 to 4, characterized in that an upper body (41, 42) provided with at least one shelf is joined to the upper horizontal portion of the "C" profiles. 20
10. Structure for the formation of office furniture and the like, as claimed in claims 1 to 4, characterized in that lower shelves (43), situated beneath the table top-board, are fitted on the vertical parts of the "C" profiles. 25
11. Structure for the formation of office furniture and the like, as claimed in claim 1, characterized in that it comprises hinge devices formed by a joining link (34) comprising at least two heads (35) of circular shape linked by an intermediate radial flap (36), said heads being rotatably housed within grooved profiles (37), of circular open interior section, provided with means of attachment to at least one panel which can be orientated like a screen (33) and a frame member of the structure. 30  
35  
40
12. Structure for the formation of office furniture and the like, as claimed in claims 1 and 11, characterized in that the heads of the links are traversed by a longitudinal rod (40), which constitutes a reinforcement axis. 45
13. Structure for the formation of office furniture and the like, as claimed in claims 1, 11 and 12, characterized in that the hinge devices are provided with means of attachment to a bookcase (44) and, at least, a screen (33). 50
14. Structure for the formation of office furniture and the like, as claimed in claims 1 and 11, characterized in that at least one of the heads (35) of the joining links of the hinge devices is provided with two radial flaps (36) orientated in different directions, linked to other corresponding 55

FIG. 1

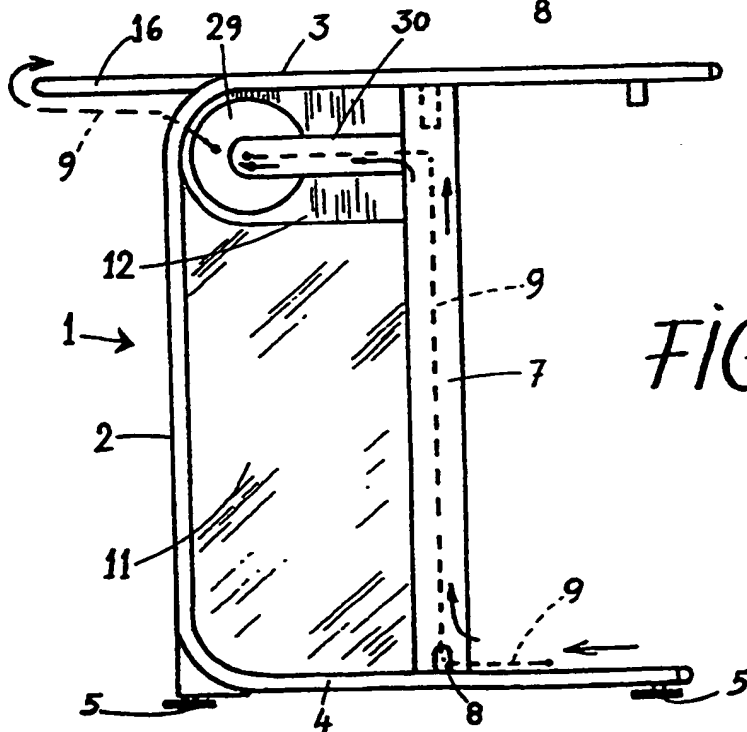
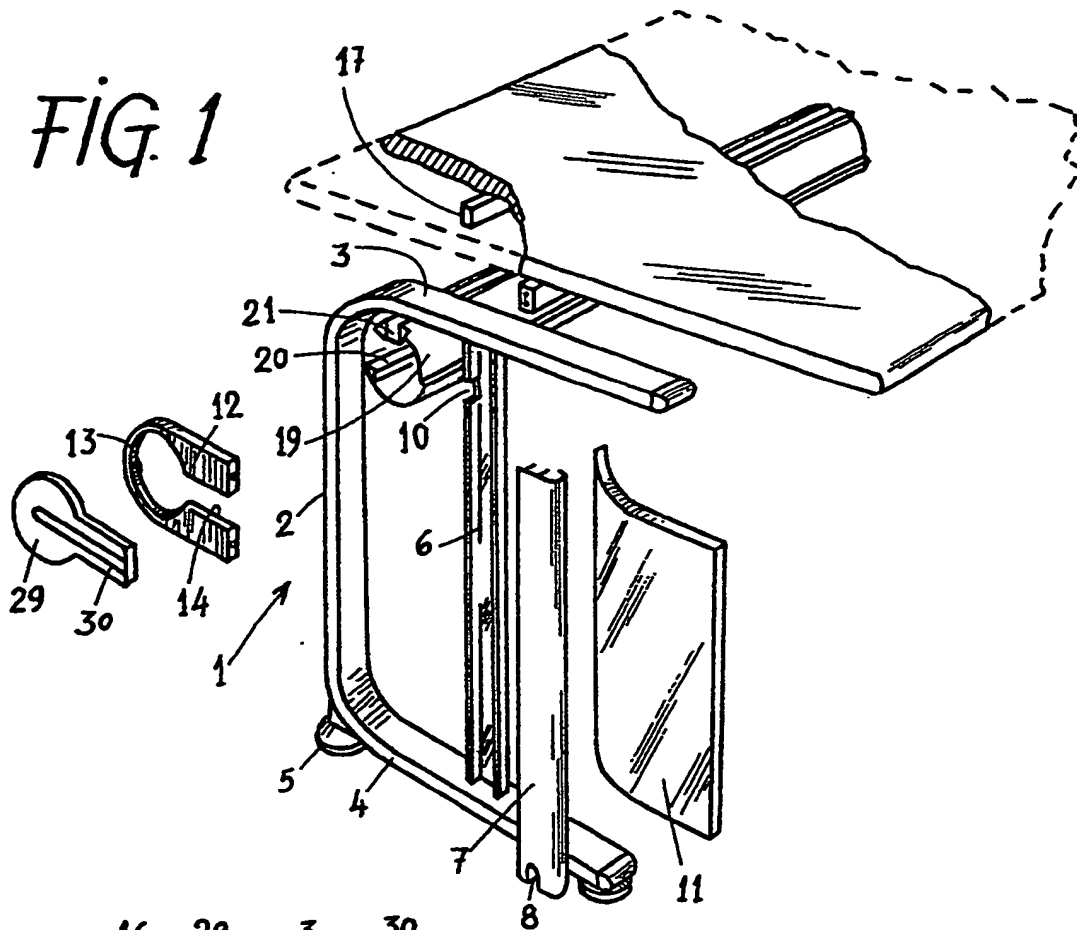


FIG. 2



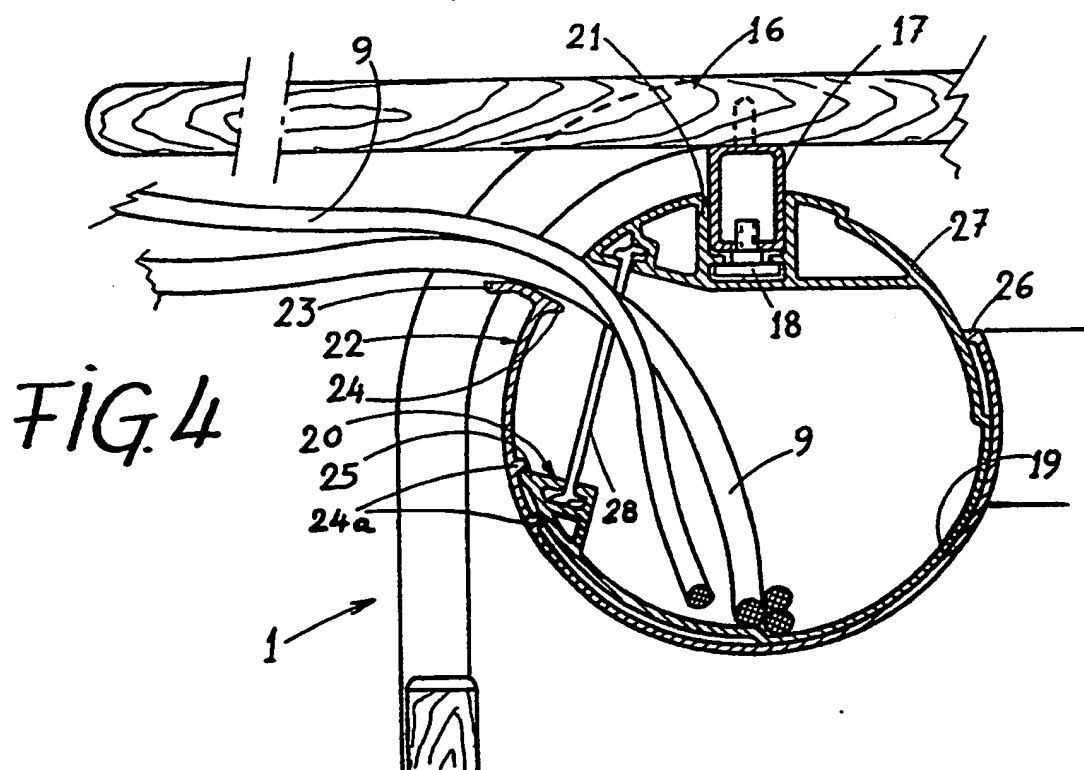
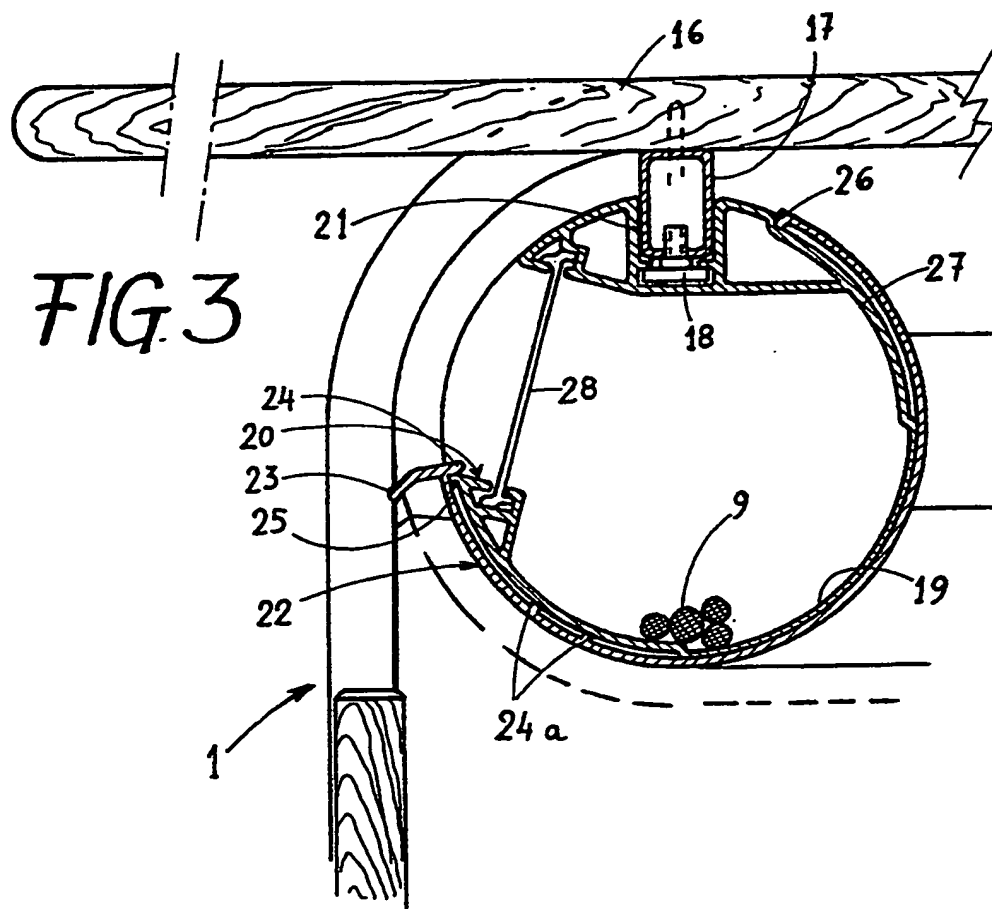


FIG. 5

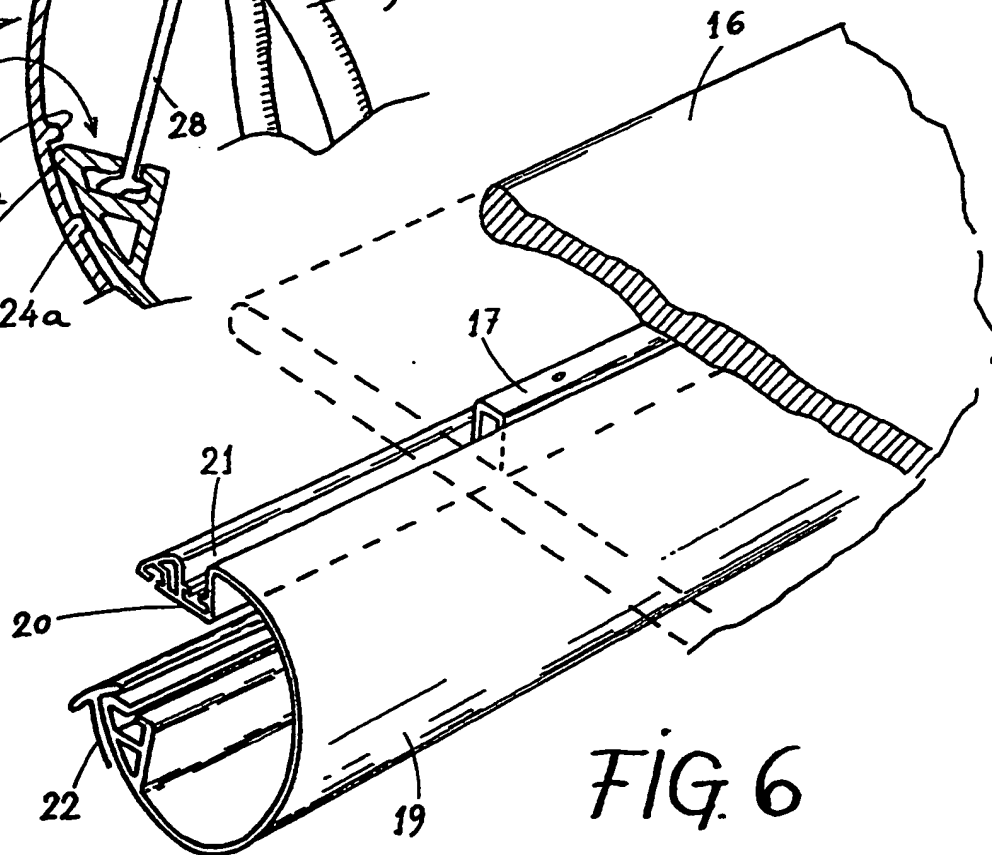
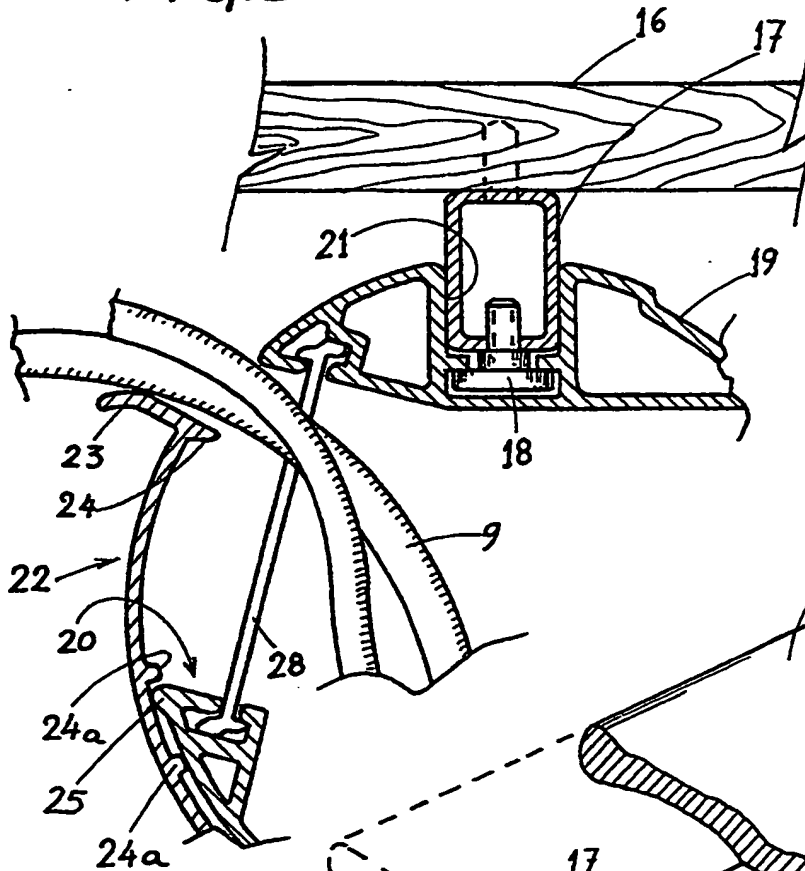


FIG. 6

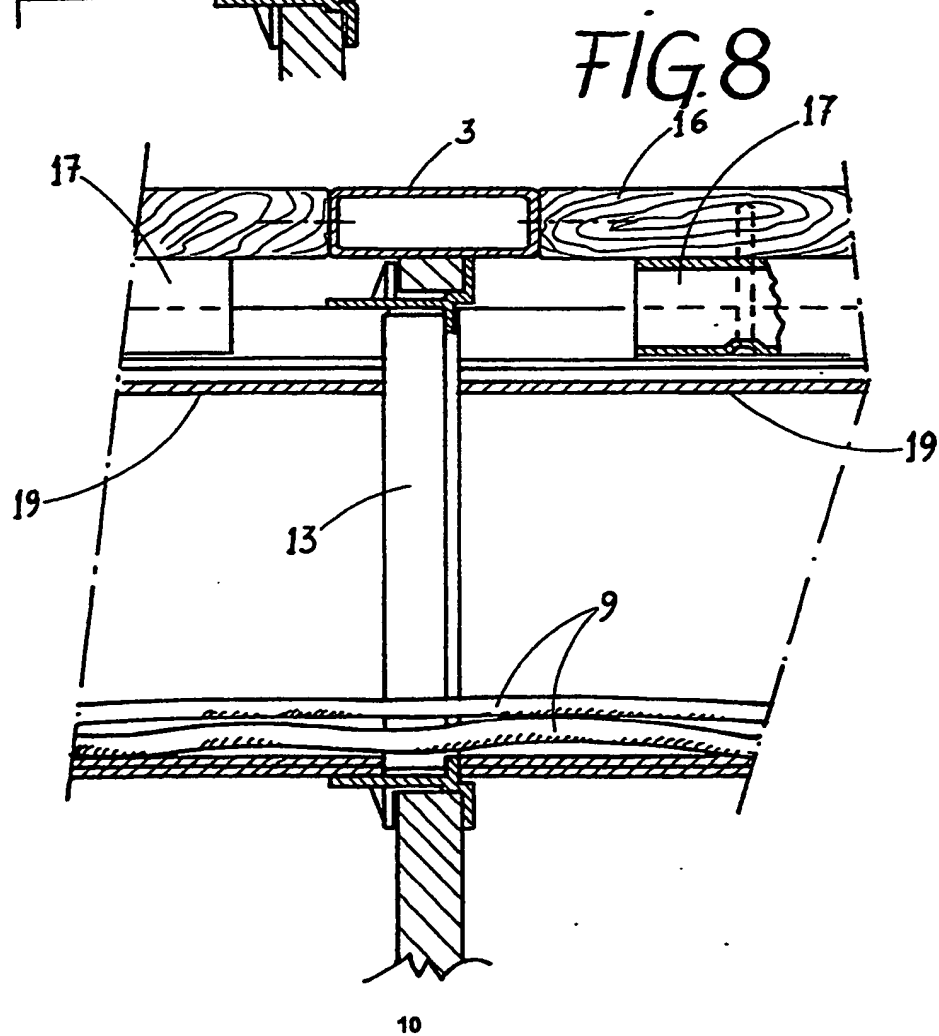
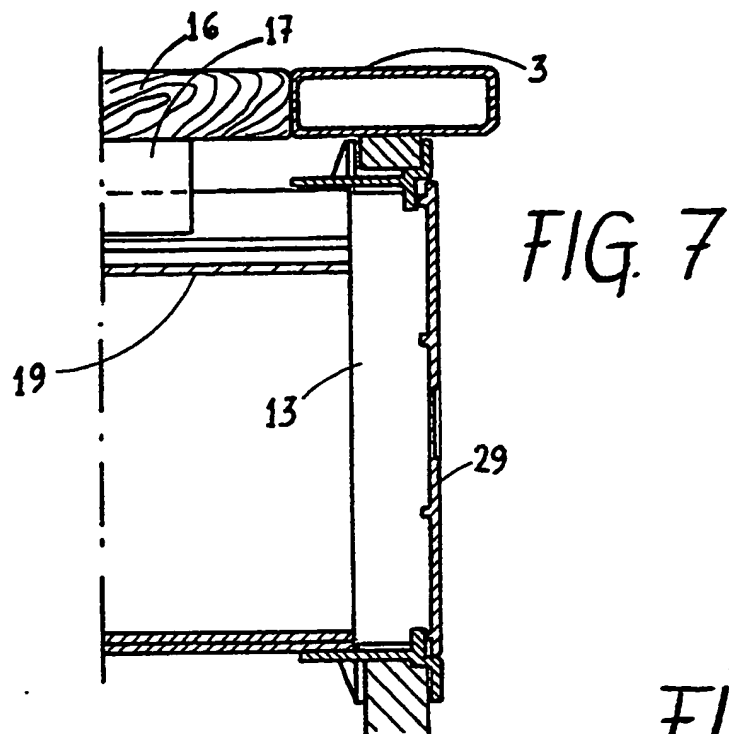


FIG. 9

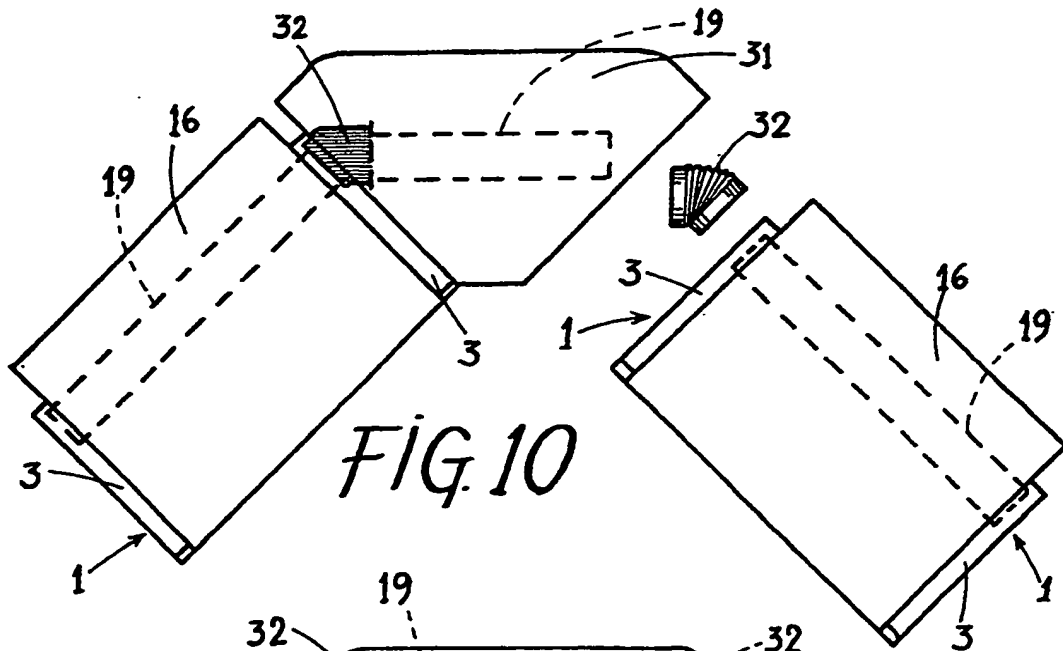
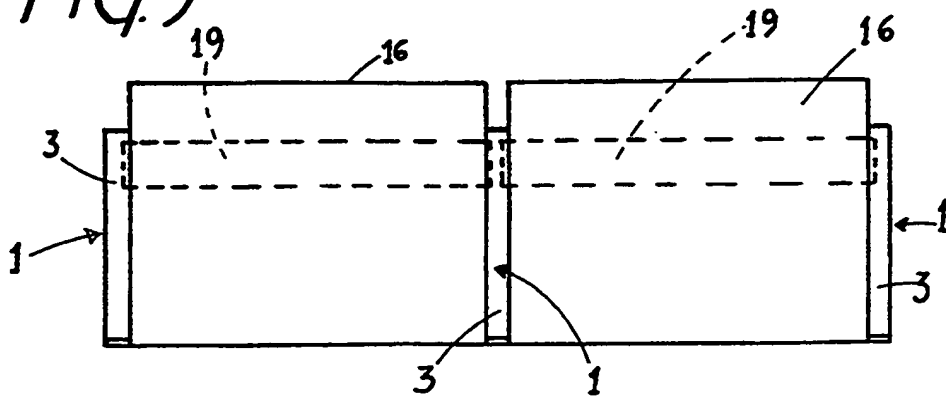


FIG. 10

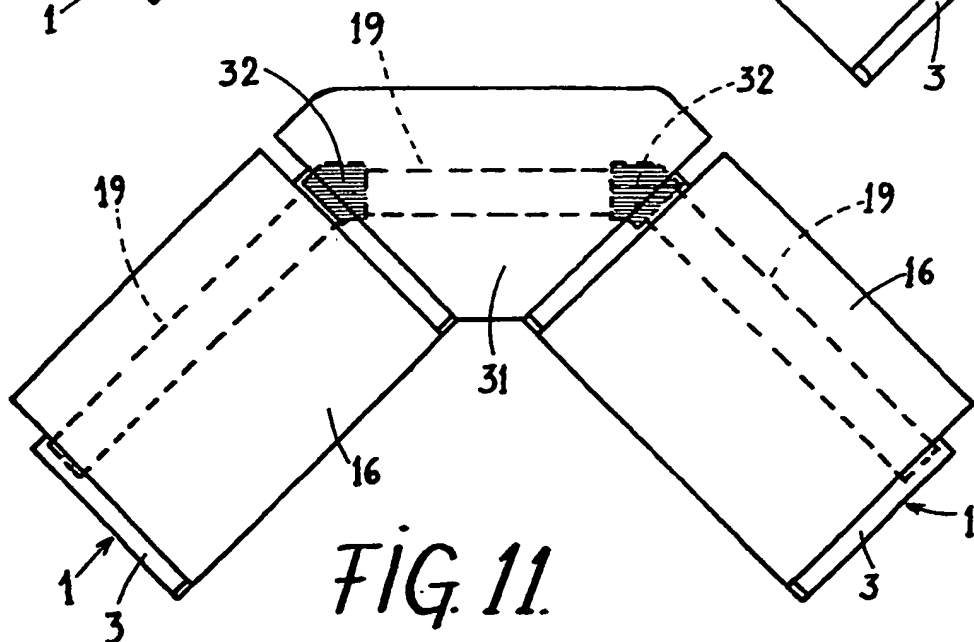


FIG. 11

FIG. 12

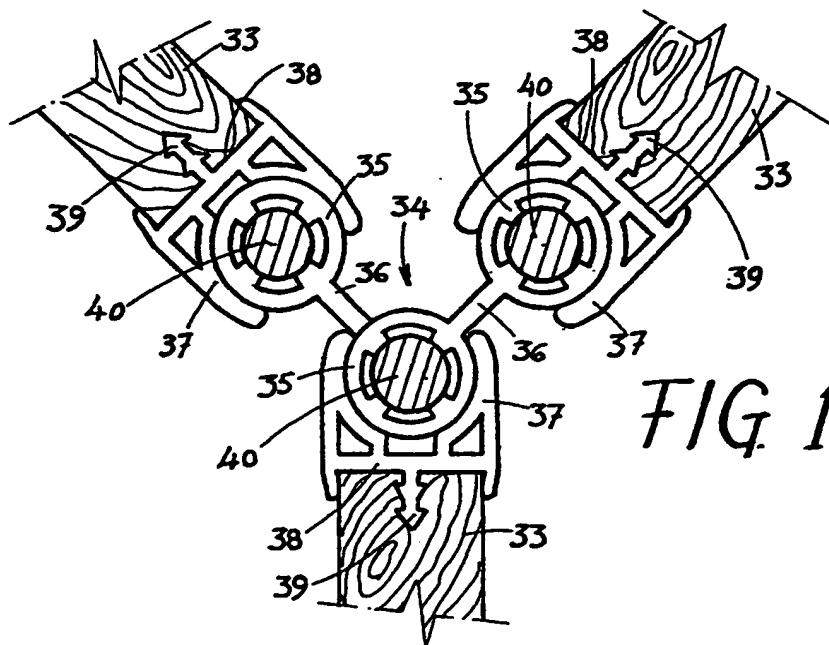
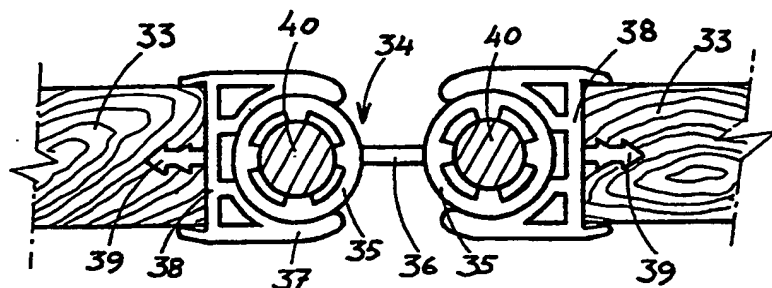
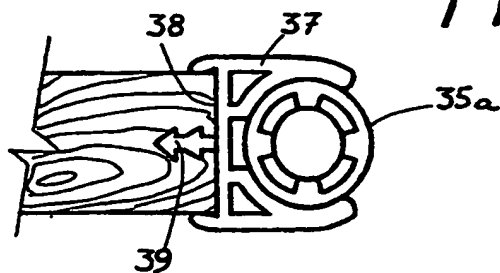
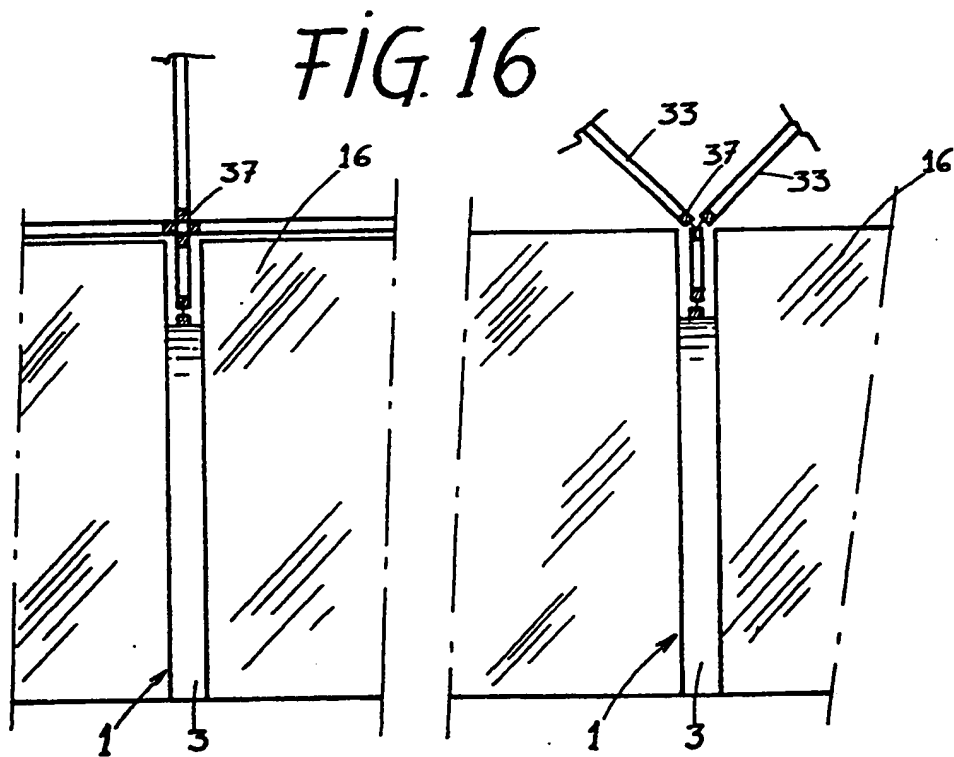
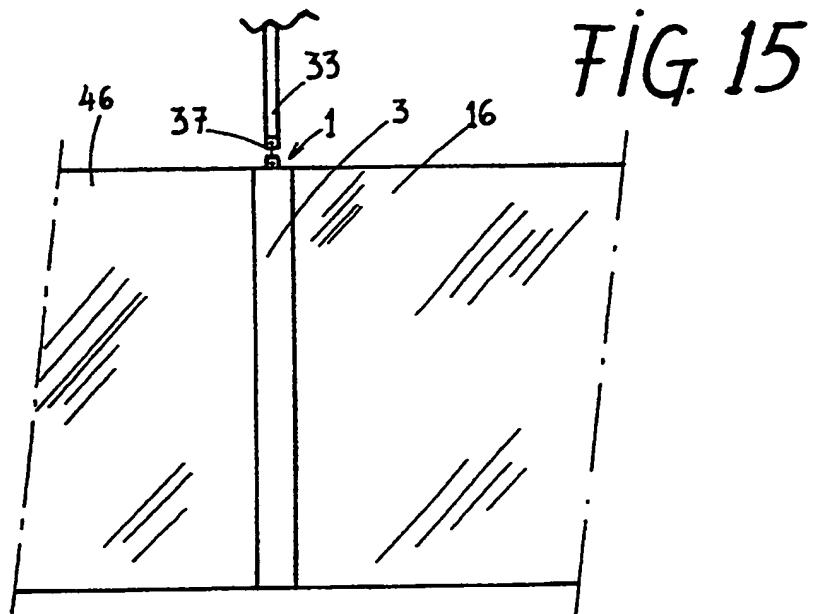


FIG. 13

FIG. 14





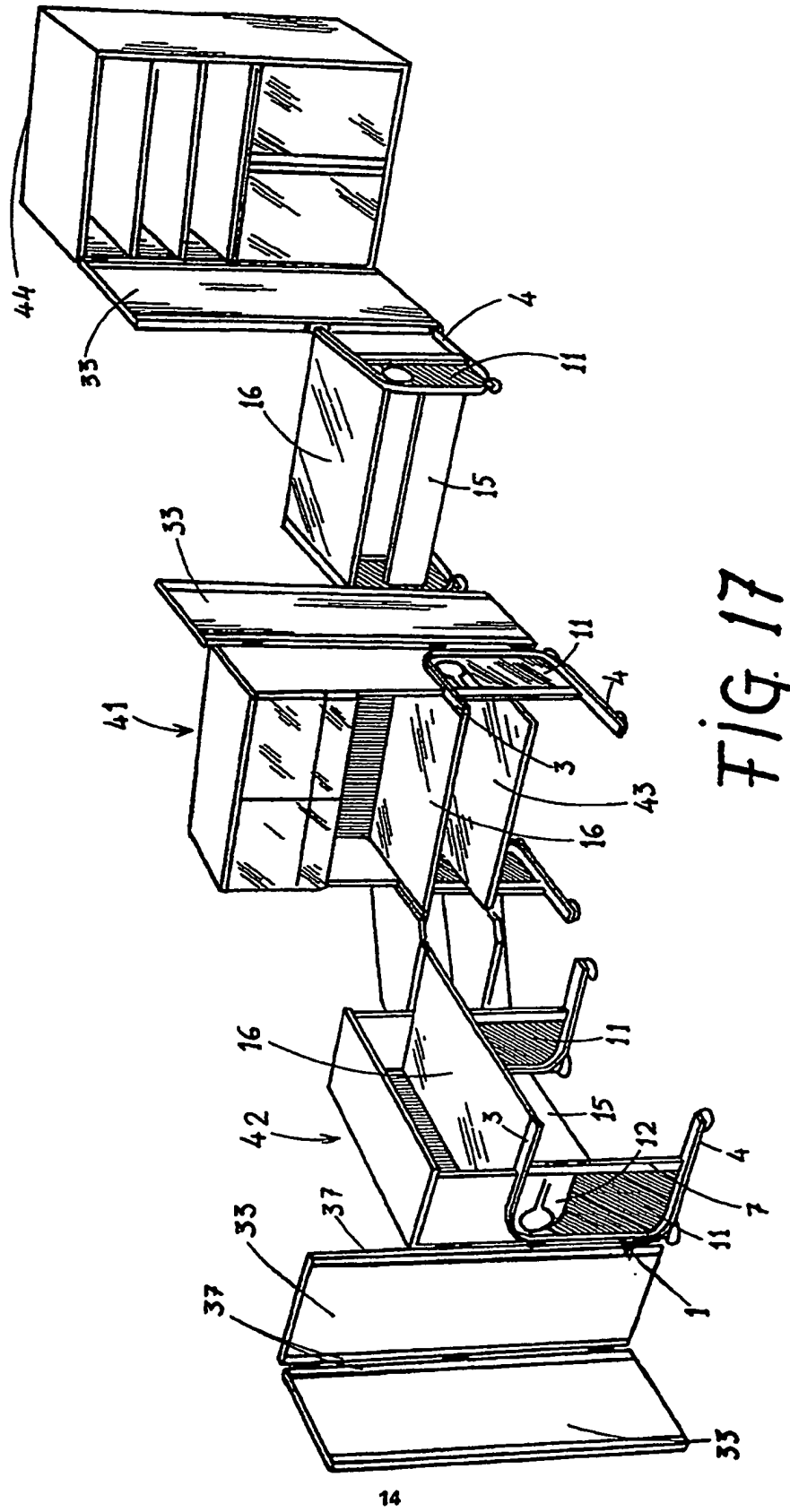


FIG. 17



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# EUROPEAN SEARCH REPORT

Application Number

EP 91 50 0063

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. CL.5)
X	EP-A-10 277 (VARIO-WERKE DICHMANN AG) * the whole document *	1-3, 8	A47B83/00 A47B21/00
X	DE-A-3 239 083 (DYES GMBH BÜRONÖBELWERK) * page 6 - page 8; figures 1-2 *	1	
A	DE-A-3 016 353 (EMBRU-WERKE, MANTEL & CIE) * page 8, paragraph 1 - page 12; figure 1 *	1-3	
A	DE-U-8 627 448 (WILHELM WERNDL GMBH & CO KG) * page 4, last paragraph - page 5, paragraph 1 *	5	
A	US-A-3 559 352 (MAGNUSON) * figures 1-13 *	11-14	
			TECHNICAL FIELDS SEARCHED (Int. CL.5)
			A47B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 16 SEPTEMBER 1991	Examiner NOESEN
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